

## Claims

1. A Gram-positive bacterium which has been transformed with a heterologous gene encoding pyruvate decarboxylase, wherein the heterologous gene expresses an active pyruvate decarboxylase, and wherein the bacterium has native alcohol dehydrogenase function.
2. A Gram-positive bacterium according to claim 1 wherein the bacterium is a *Bacillus* sp.
3. A Gram-positive bacterium according to claim 1 wherein the bacterium is a thermophile.
4. A Gram-positive bacterium according to claim 2 wherein the *Bacillus* is selected from *B. stearothermophilus*; *B. calvodox*; *B. caldotenax*, *B. thermoglucosidasius*, *B. coagulans*, *B. licheniformis*, *B. thermodenitrificans*, and *B. caldolyticus*.
5. A Gram-positive bacterium according to claim 1 wherein the gene encoding lactate dehydrogenase expression has been inactivated.
6. A Gram-positive bacterium according to claim 5 in which the lactate dehydrogenase gene has been inactivated by homologous recombination.
7. A Gram-positive bacterium according to claim 1 in which the heterologous gene is from *Zymomonas* sp or from *Saccharomyces cerevisiae*.
8. A Gram-positive bacterium according to claim 7 in which the heterologous gene is from *Z. mobilis*.
9. A Gram-positive bacterium comprising a native *adh* gene and which has been

transformed with a *pdc 5* gene from *S. cerevisiae*.

10. A Gram-positive bacterium according to claim 9 wherein the heterologous gene is incorporated into the chromosome of the bacterium.

11. A Gram-positive bacterium according to claim 1 in which the bacterium has been transformed with a plasmid comprising the heterologous gene.

12. A Gram-positive bacterium comprising a native *adh* gene and which has been transformed with a plasmid comprising a heterologous gene encoding pyruvate decarboxylase, wherein the plasmid is pFC1.

13. A Gram-positive bacterium comprising a native *adh* gene and which has been transformed with a heterologous gene encoding pyruvate decarboxylase wherein the heterologous gene is operatively linked to the lactate dehydrogenase promoter from *Bacillus* strain LN (NCIMB accession number 41038).

14. Strains LN (NCIMB accession number 41038); LN-T (E31, E32); TN NCIMB accession number 41039); TN-P1; TN-P3; LN-S (J8) (NCIMB accession number 41040); LN-D (NCIMB accession number 41041); LN-D11 and LN-DP1.

15. The gram-positive bacterium of claim 9 wherein the bacterium is a thermophile.

16. The gram-positive bacterium of claim 12 wherein the bacterium is a thermophile.

17. The gram-positive bacterium of claim 13 wherein the bacteria is a thermophile.

18. The gram-positive bacterium of claim 9 further comprising an inactivated lactate dehydrogenase gene.

19. The gram-positive bacterium of claim 12 further comprising inactivated lactate

dehydrogenase gene.

20. The gram-positive bacterium of claim 13 further comprising inactivated lactate dehydrogenase gene.